

WHAT IS CLAIMED:

1 1. A method for measuring mobile charge in a dielectric
2 layer on a substrate, said method comprising:
3 applying at least one first polarity corona bias
4 temperature stress cycle to said layer;
5 applying successive second polarity corona bias temperature
6 stress cycles to said layer and measuring a
7 corresponding voltage drop, said successive cycles
8 being of substantially equal time; and
9 determining said mobile charge according to said voltage
10 drops.

1 2. A method for measuring mobile charge in a dielectric
2 layer on a substrate, said method comprising:
3 applying at least one first polarity corona bias
4 temperature stress cycle to said layer;
5 applying successive second polarity corona bias temperature
6 stress cycles to said layer and measuring a
7 corresponding voltage drop until said voltage drops
8 approach a terminal value; and
9 determining said mobile charge according to said voltage
10 drops.

1 3. A method for measuring mobile charge in a dielectric
2 layer on a substrate, said method comprising:
3 applying at least one first polarity corona bias
4 temperature stress cycle to said layer;
5 applying successive second polarity corona bias temperature
6 stress cycles to said layer and measuring a
7 corresponding voltage drop;
8 creating a dipole potential monitoring site on said layer
9 with a second polarity corona prior to at least one
10 first polarity corona bias temperature stress cycle;
11 measuring a dipole site voltage at said site before and

12 after at least one second polarity corona bias
13 temperature stress cycle; and
14 determining said mobile charge according to said voltage
15 drops and said dipole site voltages.

1 4. A method for measuring mobile charge in a dielectric
2 layer on a substrate, said method comprising:
3 applying at least one first polarity corona bias
4 temperature stress cycle to said layer;
5 applying successive second polarity corona bias temperature
6 stress cycles to said layer and measuring a
7 corresponding voltage drop;
8 measuring an amount of charge necessary to bias said
9 substrate from a midband condition to a pull-up
10 condition before at least one said successive second
11 polarity corona bias temperature stress cycle;
12 measuring an amount of charge necessary to bias said
13 leakage monitoring site back to said midband condition
14 after said at least one of said successive second
15 polarity corona bias temperature stress cycles; and
16 determining said mobile charge according to said voltage
17 drops and a difference between said charge
18 measurements.

1 5. A method according to claim 4, wherein said midband
2 conditions are determined by a surface photovoltage measurement.

1 6. A method for measuring mobile charge in a dielectric
2 layer on a substrate, said method comprising:
3 applying at least one first polarity corona bias
4 temperature stress cycle to said layer;
5 applying successive second polarity corona bias temperature
6 stress cycles to said layer and measuring a
7 corresponding voltage drop;
8 measuring a surface photovoltage before and after at least

9 one of said successive second polarity corona bias
10 temperature stress cycles; and
11 determining said mobile charge according to said voltage
12 drops and said surface photovoltages.

1 7. A method for measuring mobile charge in a dielectric
2 layer on a substrate, said method comprising:
3 applying at least one first polarity corona bias
4 temperature stress cycle to said layer;
5 applying successive second polarity corona bias temperature
6 stress cycles of substantially equal time to said
7 layer and measuring a corresponding voltage drop until
8 said voltage drops approach a terminal value;
9 creating a dipole potential monitoring site on said layer
10 with a second polarity corona prior to at least one
11 first polarity corona bias temperature stress cycle;
12 measuring a dipole site voltage at said site before and
13 after at least one second polarity corona bias
14 temperature stress cycle;
15 measuring an amount of charge necessary to bias said
16 substrate from a midband condition to a pull-up
17 condition before at least one said successive second
18 polarity corona bias temperature stress cycle;
19 measuring an amount of charge necessary to bias said
20 leakage monitoring site back to said midband condition
21 after said at least one of said successive second
22 polarity corona bias temperature stress cycles;
23 measuring a surface photovoltage before and after at least
24 one of said successive second polarity corona bias
25 temperature stress cycles; and
26 determining said mobile charge according to said voltage
27 drops, said dipole site voltages, a difference between
28 said charge measurements and said surface
29 photovoltages.